

December 2, 2002

EPA Region 5 Records Ctr.



362886

\*\*\*Via Electronic Mail \*\*\*

Mr. Dion Novak  
Superfund Division  
United State Environmental Protection Agency  
77 West Jackson Boulevard  
Mail Code: SR-6J  
Chicago, Illinois 60604

Re: Revised Draft Phase 1 Technical Memorandum  
Remedial Investigation/Feasibility Study  
Eagle Zinc Company Site, Hillsboro, Illinois

Dear Mr. Novak:

This letter transmits proposed revisions to the draft Phase 1 Technical Memorandum for the Eagle Zinc Company Site in "track changes" format. Initial comments on the Work Plan were provided orally to the Technical Group during the October 29, 2002 technical review meeting and were summarized in a letter from the Agency to Roy Ball of ENVIRON dated November 7, 2002.

The Agency's comments are repeated below in italics, followed by a response and a reference to the portion of the draft Phase 1 Technical Memorandum that was modified in response to the comment.

*1. Page 1 par 2. Delete "both" and "complete" in the 2<sup>nd</sup> sentence. Please also replace "metals concentrations in these media" to "contamination at the site" in the 3<sup>rd</sup> sentence.*

The edits were made to the referenced paragraph as requested.

*2. Page 4 par 1. Please provide the proper reference to the table where the soil boring sample results are located. Please also provide additional clarification on the last sentence on this page, to further explain details of PID/XRF sampling details, including an explanation as to whether surficial deposits were scraped away before sampling or whether the actual instrument reading was from the ground surface. This explanation should include details on actual depths and areal extent.*

A reference to Table II-1 was inserted in the referenced paragraph as requested. Additional clarifications were added to this section concerning how and where

PID and XRF measurements were made.

3. Page 5 par 1. *Were the lab samples collected from the ground surface? Please elaborate. Replace "metals concentrations" with "XRF screening results" in the 4<sup>th</sup> sentence.*

Consistent with Appendix A of the RI/FS Work Plan (Field Sampling Plan) and Section II.B of the Phase 1 Technical Memorandum, laboratory samples were collected from the uppermost one-foot interval of undisturbed native soil. The referenced edit was made.

4. Page 5 par 2. *Reference the figure where the PID results are located. Was there any visual contamination in the soil samples that could be used to locate samples for lab analysis? Were any of the lab samples located near current manufacturing operations? Were the additional borings advanced after screening samples were collected, sampled at the same depth as the PID/XRF measurements?*

II-1  
A reference to the PID results presented in Table II-1 was added. There was no visual evidence of contamination in the soil samples; a statement to this effect has been added to this section. As shown on Figure II-2 and in Table II-1, three soil samples collected in the manufacturing area, MA-6, MA-8 and MA-9, were submitted to the laboratory for analysis. The samples from the additional borings for TCL organic compounds and PCBs analysis were collected immediately adjacent to, and at the same depth as the original borings. Appropriate clarifications were made to the referenced paragraph.

5. Page 5 par 3. *It is not clear from the text whether all initial borings were done first and where the samples were stored until actual sampling locations could be selected. Footnote 2 should be modified to indicate that beryllium and thallium were not included as part of the XRF screening.*

Clarifications were added to the referenced paragraph concerning sampling procedures and the requested edit to Footnote 2 was made.

6. Page 6 Section C par 2. *Add flow arrows for drainage channel flow direction to Figure II-2. Sample SD-WD-10 should not be considered a background sample as it is located in the drainage area just south of the site, downgradient from areas of the site which have known exceedances.*

Flow direction arrows have been added to Figure II-2 and other figures depicting the drainageways. SD-WD-10 was designated as an upgradient sediment sample in the RI/FS Work Plan, as it was not located in an area believed to receive direct runoff from the site (i.e., the location is upstream of the portion of the southern drainage ditch that may receive direct runoff). The relatively low level of zinc detected in sample SD-WD-10 supports this designation. The detection of arsenic in sediment sample SD-WD-10 is attributed to the use of arsenic at the wood preserving facility located at the property on which sample SD-WD-10 was

collected, or to naturally occurring arsenic.

*7. Page 7 1<sup>st</sup> incomplete par. Was the actual sample collected after all the screening results for all samples were collected or was this done individually?*

All sediment samples retained for laboratory analysis were collected after PID screening was completed at all of the sediment sampling locations. A clarifying statement was added to the referenced paragraph.

*8. Page 7 Section D par 1. Please clarify the text to explain how the pile configurations that were discovered in the field work compare to what was included in the workplan and update information as necessary. Will the pile recycling activities cease now that the plant is closing up operations? Please also update any pile configuration or characteristic information from what was outlined in the workplan. All references to NP (new piles) should be explained with the above requested clarifications. This report also indicates that only 15 of the piles identified in the workplan were sampled. At our meeting, it was discussed that field decisions limited the total number of piles-please provide this explanation in the text.*

As the plant is currently undergoing closure, the screening of historic residue piles to produce the zinc/carbon-rich product has ceased. Clarifications were added to Section II.D, Section III.A and Table II-3 concerning how the piles sampled differed from those identified in the RI/FS Work Plan, as well as the residue type classifications that best characterize these piles.

*9. Page 8 par 1. Any data collected as part of TL Diamond's closure activities should be referenced in the site documents, probably as part of Phase 2 summaries but here, if currently known. If not known, a statement should be added to the text indicating that this data will be included when available. This data should then be included in the site data summaries during the RI.*

A statement to this effect has been added to Section VI of the report.

*10. Page 9 Section III. These sections should be modified and updated based on the Phase 1 fieldwork with differences between what was stated in the workplan and what was discovered during sampling highlighted.*

Certain edits have been made to Section III to highlight observations made as a result of the Phase 1 field work.

*11. Page 10 Section G. A qualitative ecological assessment was reported as being completed during Phase 1. As requested at the meeting, an explanation as to objectives, what guidance was utilized, what was done, where it was done, and where the results will be reported and a description of how the results will be used to focus further site work, should be added to the text. Please also give a timeline for when this report will be available and transmitted to the Agencies.*

As stated in the RI/FS Work Plan, a Screening Level Ecological Risk Assessment (SERLA) will be completed as a component of the Baseline Risk Assessment. As a matter of convenience, the site visit for the SERLA was completed by Limno-Tech, Inc. (LTI) during the Phase I activities. As part of the risk assessment, information generated as a result of the site visit will be integrated with LTI's evaluation of the sediment and surface water data relative to ecological screening values. This evaluation will be presented as a component of the Baseline Risk Assessment Technical Memorandum and RI Report. A brief summary of the site visit objectives was added to Section III.G.

*12. Page 11 Section A. The reference to Illinois TACO numbers as a reference is acceptable as long as they are not used to limit future sampling or reduce analytical protocols or limit contaminants of concern discussions. Also, the use of the TACO numbers should only be done for comparative purposes as a preliminary screening tool, as their use may or may not be appropriate when evaluating risk and proper cleanup technologies. As outlined in the meeting, please replace the term PRGs in this document with a term like screening levels, as this may confuse the actual issue of properly selecting soil cleanup levels. Please also provide an explanation as to why the Region 3/9 EPA risk tables for soil were not used for this comparison analysis.*

As discussed during the October 29, 2002 Technical Review Meeting, TACO Tier I soil remediation objectives (SROs) are the most stringent potentially "applicable requirements" promulgated by the State of Illinois. Therefore, they meet the definition of Applicable or Relevant and Appropriate Requirements (ARARs), as defined in the National Contingency Plan (NCP). The TACO Tier I SROs are considered threshold values, below which soils are considered "not contaminated". As the TACO Tier I values are considered more applicable and appropriate to soils at the Eagle Zinc site than generic USEPA soil screening levels, they were used as preliminary remediation goals (PRGs) in the first-level screening of the Phase 1 data.

According to both the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA and the Risk Assessment Guidance for Superfund (RAGS), PRGs are used as a comparative tool reasonably early in the RI/FS process (Scoping and Site Characterization). Contrary to USEPA's statement, the PRGs discussed in the Phase 1 Technical Memorandum have not, and will not be confused with exposure-based soil cleanup levels that may be developed from the risk assessment. Section 1.1.3 of RAGS (Part A) states: "Under the proposed revised NCP and the interim RI/FS guidance, preliminary remediation goals typically are formulated first during project scoping or

concurrent with initial RI activities (i.e., prior to completion of the baseline risk assessment)”).

While it is entirely appropriate to use the term “PRGs” in discussing the preliminary screening evaluation described in the Phase 1 Technical Memorandum, ENVIRON and the Eagle Zinc Parties agree to replace “PRGs” with the term “Screening Levels”, albeit with the assertion that the two terms are entirely synonymous.

*13. Page 11 par 3. Portion of last sentence regarding arsenic as background should be removed-see comment 12 for explanation. These levels that are presented in this paragraph and the preceding one are for commercial/industrial use, not residential. Please clarify in the text.*

The requested edit/clarifications have been made to the referenced paragraph.

*14. Page 12 par 1. Did this kriging method pick up areas where the XRF or lab sampling did not identify exceedances?*

Yes. The EVS evaluation identified all areas where cadmium soil concentrations (based on a zinc/cadmium correlation determined using actual laboratory data) are predicted to exceed the soil Screening Level for cadmium of 11 mg/kg. The results of this evaluation are depicted on Figures IV-2 and IV-3.

*15. Page 12 par 2. It is not clear in this discussion as to whether any actual data for cadmium was utilized in this estimating process. It is more appropriate to use actual lab or real XRF data for a comparison rather than estimating using estimated Cd values. It is apparent that most of the Cd data was estimated, making any conclusions regarding its presence and at what levels, premature. If the majority of the Cd data was not clearly quantified using XRF, then another screening method must be used to generate the appropriate data. It is also unclear as to how much Cd data was actual lab data and how much was estimated from the XRF.*

*It appears to be premature to be making conclusions about the extent of Cd in the soils based on the data collected during Phase 1. This data gap will need to be further addressed during the remainder of the RI.*

In accordance with the sampling protocol provided in the Field Sampling Plan, a full set of validated laboratory soil data was generated of cadmium, as well as all of the other TAL metals. The soil borings were randomly selected from grids of potential sampling locations, and samples for laboratory analysis for TAL metals were selected based on total metals concentrations estimated by XRF screening. In summary, a data gap does not exist for cadmium.

The kriging exercise was conducted to more accurately identify areas where cadmium may exceed its Screening Level. As stated above, actual laboratory data for cadmium and lead were used to generate the correlation used in this exercise. Moreover, none of the laboratory or XRF results, including detection limits for

non-detects, exceeded Screening Levels based on direct-contact pathways (i.e., only the soil migration to ground water pathway is of issue for cadmium). Therefore, the PAOCs for cadmium in soil were identified using both laboratory sample locations that exhibited exceedances of the Screening Levels, as well as the EVS data. The PAOCs depicted on Figure IV-3 were then used in conjunction with other information to identify the optimal locations for additional permanent monitoring wells, as described in Section VI of the report. The use of EVS greatly enhanced ENVIRON's ability to identify areas that should be subjected to ground water investigations during Phase 2.

*16. Page 12 par 3. Remove the 3<sup>rd</sup> sentence, as discussed at the meeting, as this is a premature conclusion based on data collected to date.*

This edit has been made as requested.

*17. Page 13 1<sup>st</sup> incomplete par. Please bring the footnote discussion into the text and correct the mistakes in the units. The statement regarding VOCs in the first sentence is incorrect. Sample X-206 had VOC concentrations of 1,1,1-trichloroethane (290J ppb), methylene chloride (160J ppb), 2-butanone (48J ppb), and toluene (36J ppb) which was collected on-site at the north end of the west drainage area, north of the SD-WD-9D sample, which does not rule out that it may be impacted by site operations. SD-ED-C should be SE-ED-16. Remove "indicating ...pathways" from the last sentence. The footnote references should state that they are for commercial/industrial land uses and not residential*

The footnote was brought into the text and the units have been corrected. A clarification was made to the referenced statement concerning VOCs, SVOCs and PCBs. The additional edits/corrections were made as requested. However, it should be noted that no information suggests that these VOCs are used in the site manufacturing processes.

*18. Page 13 par 1. Please add to the narrative whether there was surface water in the drainage ways when sampling was conducted. This can then be compared to what was predicted in the workplan. The reference to antimony PRG should indicate that it is for the soil to groundwater pathway.*

Information concerning the presence of surface water in the drainageways at the sediment sampling locations was added to Section II.C. Text was added to the referenced paragraph to indicate that the exceedance of the Screening Level for antimony was for the soil to groundwater pathway.

*19. Page 13 Section C. Please include pile volume estimates based on the sampling exercise, as was outlined in the workplan.*

Residue pile volume estimates have been added to Table II-3. (still working on this) when?

20. Page 14 1<sup>st</sup> incomplete par. Please elaborate on the issues related to TCLP/SPLP, which were mentioned briefly at our meeting. Please outline the major issues here for eventual discussion in the Phase 2 results meeting with respect to risk and fate and transport issues. MP1-1 should be MP1-21. Please also add the phrase "the RCRA hazardous waste threshold value of" after "the TCLP lead results" in the 2<sup>nd</sup> to last sentence. Replace the last sentence with "No other metals had TCLP results in excess of their respective RCRA hazardous waste threshold values."

As the SPLP concentrations represent an estimation of potential metals concentrations in any meteoric water that infiltrates the residue piles, these data may be used during Phase 2 and/or the baseline risk assessment to evaluate potential impacts on ground water associated with the piles (e.g., in fate and transport calculations, etc.). In addition, the SPLP data may be useful in evaluating remedial options involving the placement or continued existence of residue materials in certain areas of the site. Actual uses of these data will depend on the Phase 2 investigation results, ARARs selected for the site, remedial alternatives considered during the FS, and other factors.

The requested edits were made to the referenced paragraph in Section IV.C.

21. Page 15 Section V. The updates to the conceptual site model are acceptable as long as information is not being deleted from the model at this stage. New information can be added to the tables at this time, and again after Phase 2 sampling has been completed. Any revisions of the model that remove certain elements can only occur after all sampling has been completed and results available. This model should also include the results of previous sampling at the site.

Based on previous sampling results, lead should be added to the table for on-site soil. The following contaminants should be added to the sediment-western drainage way column-nickel, thallium, silver, lead, 1,1,1-trichloroethane (these were detected in 1998 sampling).

As discussed during the meeting, the conceptual site model (CSM) included in the Phase 1 Technical Memorandum has been modified to largely reflect the potential contaminants of concern (PCOCs), potential areas of concern (PAOCs) and exposure routes outlined in the CSM tables included in the RI/FS Work Plan. Where additional PCOCs were identified during the Phase 1 Investigation, the CSM was modified accordingly. As discussed, no PCOCs, PAOCs or exposure routes were deleted from the CSM.

22. Page 15 par 2. See previous comment about removing contaminants from the model-all sampling has not been completed and it is premature to reduce this list until this is completed.

See response to Comment 21.

23. Page 16 AOC table. Based on the 1998 sampling, piles RR1-1, RR1-2, RR1-4, RRO-12, RCO-10, and CPH-6 should be added to the residues column. Each had TCLP lead

*in excess of the RCRA hazardous waste threshold.*

It is noted that the 1998 samples from Piles RCO-10 and CPH-6 did not exceed RCRA limits for hazardous waste. As discussed, the PAOC table was revised to match the corresponding CSM table presented in the RI/FS Work Plan, with the addition of the Western Area in the “on-site soils” column based on the Phase 1 soil data.

*24. Page 16 Exposure routes table. Addition of ecological receptors to the on-site soil column should be done as the ecological survey has not been completed and impacts on ecological receptors cannot be ruled out at this point. Addition of a column for soil leaching to groundwater COCs (i.e. cadmium and lead) and adding ingestion/inhalation COCs (cadmium and lead) to the exposure routes for onsite soils.*

*Addition of ecological receptors to the on-site sediments column should be done for the reasons listed above and adding inhalation/ingestion for cadmium and lead to the exposure routes column should be done for the same reasons.*

*A column for on-site residues should be added to this table with appropriate entries for affected population and exposure routes for the same reasons as listed above.*

*The site trespasser/site employee should be added to the affected population column as discussed at the meeting.*

The requested edits have been made to the Potential Exposure Routes summary table. References to specific exposure routes for specific PCOCs have been removed from this summary table pending collection of all remaining RI data.

*25. Page 18 Section A par 1. Two additional samples should be collected in the on-site pond, one at the north end of the pond and one at the south end, on the site side of the outfall. These samples should be analyzed for the constituents listed for surface water in the RI/FS workplan.*

Three additional surface water samples (includes a sample at the location of sediment sample SD-WD-9) will be collected as reflected by the edits made to Section VI.A and Figure VI-1. These samples will be analyzed for TAL metals.

*26. Page 18 Section B 1<sup>st</sup> bullet. Remove the word “temporary” from the 1<sup>st</sup> line. As discussed in the meeting, some or all of these piezometers should be developed as permanent monitoring points for groundwater level measurements, which will assist in the understanding of groundwater flow directions at and from the site.*

The referenced text was edited to indicate that five of the ten piezometers will remain as permanent piezometers; the remaining five piezometers will be abandoned following surveying and collection of a preliminary site-wide round of water level measurements. Edits were made to Figure VI-2 to show the proposed locations for the permanent and temporary piezometers.

Recreate  
w/text

27. Page 19 1<sup>st</sup> three lines. Compare these locations to Figure A-5 and the workplan to highlight where the locations have changed and provide justification as to why they have changed. Additional wells should be added to the following two areas, as discussed at our meeting. One should go to the west of the area from the old foundation to the small scale house (near WA-9) and the other should go in Area 4, south of A4-5 to investigate residues found below the water table.

Figure VI-2 shows proposed locations for the installation of permanent monitoring wells and temporary and permanent piezometers for the Phase 2 investigation. The two permanent wells noted in the Agency's comment have been included in the well network, which was developed in consideration of the PAOCs identified for on-site soil.

In contrast, Figure A-5 of the RI/FS Work Plan depicted 20 conceptual/hypothetical locations for temporary monitoring wells to be installed during Phase 2. As you are aware, the well locations depicted on this figure were not influenced by the Phase 1 soil results. In addition, the locations of piezometers (10 of the 20 wells were to be installed as piezometers) were not distinguished from the "temporary monitoring wells depicted on Figure A-5. Finally, as discussed during the October 29, 2002 Technical Review Meeting, a slightly different approach is discussed in the Phase 1 Technical Memorandum, which does not include the installation of temporary monitoring wells. As the well locations on RI/FS Work Plan Figure A-5 and Figure VI-2 for the reasons discussed above, they are no longer suitable for direct comparison.

28. Page 19 bullets. A surface water sample should be collected at sediment sample location SD-WD-9 due to metals contamination discovered there.

Agreed. This sample is depicted on Figure VI-2.

*The background surface water sample at SD-WD-10 should be replaced by a sample near location SD-WD-5, because SD-WD-10 is located in the drainage way just south of the site, downgradient of areas with known sampling exceedances.*

As discussed in Comment 6, the results of the Phase 1 sampling results indicate that sediment at this location contains significantly lower metals concentrations than sediment in the western drainageway downstream of the site. In addition, the location of SD-WD-10 does not appear to receive storm water discharges or continuous surface water flow from the site. As noted above, the detection of a low arsenic concentration in sample SD-WD-10 suggests potential impacts associated with the wood preserving facility, the property on which the sample was collected, or naturally occurring arsenic concentrations. Therefore, a surface water sample at SD-WD-10 is important to document upgradient conditions in the drainage ditch that borders the site to the south, and which ultimately joins the western drainageway. In contrast, sediment sample location SD-WD-5 is not appropriate for documenting upgradient surface water quality, as no surface water

samples will be collected downstream of this location.

*Off-site sediment and surface water sampling results should be compared to residential land use PRGs and not the commercial/industrial land use PRGs, due to the residential nature of the off-site area. The list of COCs may change by changing the focus of the off-site sample comparison.*

The screening levels for sediment were changed in the report text and tables to reflect residential land use.

*A statement to the effect that the piezometers will be geologically logged during installation and the boring results reported in the Phase 2 TM will provide valuable information for updating the site model during and after Phase 2 work.*

This statement has been added to Section VI.B.

*29. Page 19 Section C. Provide elaboration on the sampling protocol for further sampling of the waste piles, including how they will be segregated with composite sampling used for further characterization. This information should be sufficient to explain how this newly collected information will be sufficient for additional characterization purposes and show how this data will augment previously collected data.*

Additional text was added to clarify the sampling protocol. These additional samples will help in the FS be determining if a pile as a whole demonstrates high leachability or if just portions of the pile does.

*The workplan called for an evaluation of off-site air deposition potential for each of the residual piles to be collected during pile sampling activities. This information should include data on wind direction and visual observations during soil sampling and should be usable in the analysis of potential off-site migration of pile materials. The workplan also called for an estimate of pile volume for each pile-please provide this information.*

Additional discussion was added to Section VI.C. In addition, a discussion regarding the air pathway for residue deposition was added to Section IV. The volume estimates were addressed in the response to Comment 19.

*30. Figures. Historical data should also be included on these figures in the data summary as this data is useful in evaluation of nature and extent of contamination at the site.*

As discussed in the RI/FS Work Plan and during the October 29, 2002 Technical Review Meeting, the historical data was used in the scoping phase to identify media affected, potential contaminants of concern, and potential areas of concern. All historical data was presented and discussed in the Preliminary Site Evaluation (PSE) Report and the RI/FS Work Plan.

31. *Figure IV-4. Change "SD-ED-6" to "SD-ED-16." The stream segment near SD-WD-10 should be included as an AOC as arsenic exceeded the PRG. The stream segment near SD-WD-7 should include vinyl chloride as a COC, because it exceeded the PRG there. Pile locations and storm water retention ponds should be included on all figures in this document.*

The requested changes to the figures have been made. As discussed during the October 29, 2002 Technical Review Meeting and in the response to Comment 28 above, the arsenic concentration detected in upgradient sediment sample SD-WD-10, which is slightly elevated relative to a PRG based on the average Illinois background value of 11.3 mg/kg, is attributed to off-site conditions. As such, the small tributary drainage ditch from which this sample was collected was not identified as a PAOC.

32. *Figure IV-5. Replace "( ) TCLP lead above 5" with "(5) TCLP lead above the RCRA hazardous waste threshold"*

Edit made as requested.

33. *Figure VI-2. Please list drainage ways on this figure. The northernmost well should be moved to the area south of WA-9, which had the 2<sup>nd</sup> highest cadmium results. Groundwater samples from this location should be analyzed for VOCs and metals.*

The requested changes have been made to Figure VI-2. In accordance with the Field Sampling Plan, four of the permanent monitoring wells will be sampled for TCL organic compounds and PCBs in addition to TAL metals. The four monitoring wells proposed for the organic analyses are shown on Figure VI-2.

add 3 m  
figure

*At the meeting, a number of typographical errors were identified in the tables and figures in the document-I trust that these changes have already been made in the document.*

These corrections have been made in the revised report.

If you have any questions regarding these comments, please contact me.

Sincerely,

*ENVIRON International Corporation*

F. Ross Jones, P.G.  
Manager

Attachment

cc: Thomas Krueger, Esq. - USEPA Region 5 (w/o laboratory data)  
Rick Lanham - IEPA Bureau of Land  
Tim Biggs - CH2M Hill  
Joseph Freudenberg, Esq. - Dechert (w/o laboratory data)  
Paul Harper - Eagle-Picher (w/o laboratory data)  
Doug Ucci - QMG; representing Eagle-Picher (w/o laboratory data)  
Gordon Kuntz - Sherwin-Williams (w/o laboratory data)  
Roy Ball - ENVIRON